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HISTORICAL FUND
of the
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A committee has been formed with representation from the Medical Corps, Dental Corps, Medical Service Corps, Nurse Corps, and Hospital Corps for the purpose of creating a fund to be used for the collection and maintenance of items of historical interest to the Medical Department. Such items will include, but will not be limited to, portraits, memorials, etc., designed to perpetuate the memory of distinguished members of the Navy Medical Department. These memorials will be displayed in the Bureau of Medicine and Surgery and at the National Naval Medical Center. Medical Department officers, active and inactive, are invited to make small contributions to the fund. It is emphasized that all donations must be on a strictly voluntary basis. Funds received will be deposited in a Washington, D. C. bank to the credit of the Navy Medical Department Historical Fund, and will be expended only as approved by the Committee or its successor and for the objectives stated.

It is anticipated that an historical committee will be organized at each of our medical activities. If you desire to contribute, please do so through your local historical committee or send your check direct, payable to Navy Medical Department Historical Fund, and mail to:

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Management of Staphylococcal Disease

The increasing incidence and severity of staphylococcal disease are phenomena of grave worldwide concern. Until the aims of prevention and eradication can be realized, it is of value to review principles of management applicable to the patient presenting with infection due to Staphylococcus aureus.

During the past decade, continuous changes in the treatment of staphylococcal disease have been necessary because of differences in the predominant clinical patterns of the disease and the awesome adaptability of the organism. Changing clinical patterns of staphylococcal disease have been noted in all age groups. In the last few years, medical literature has contained increasing numbers of epidemics of staphylococcal breast abscess, gastroenteritis, septicemia, and empyema of the newborn infant, all entities which were rare prior to 1950. The emergence of "antibiotic resistant" strains following extensive antibiotic usage is a matter of record.

Many factors must be considered in the evaluation of the efficacy of any therapeutic program for the management of staphylococcal disease. These include the type of patient infected, the time of the infection, the locality in which the infection occurred, and the site of infection. The age of the host and the efficiency of his defense mechanism are factors which influence the success of treatment. The locality in which infection occurs also affects the outcome of treatment. Results obtained in patients acquiring their infections outside of the hospital cannot be compared with results in patients with hospital-acquired disease. Studies of "street strains" of staphylococci isolated from patients acquiring the disease in the community show these strains to have a different antibiotic sensitivity pattern from those isolated from nosocomial infections. In addition to differences between strains acquired in hospital and non-hospital environments, there may be differences in hospital-acquired strains depending upon the antibiotics most extensively used by the individual hospital.

During the 2-year period, August 1956 to August 1958, approximately 400 children with staphylococcal disease were seen at Jefferson Davis Hospital, Houston, Texas. The management of 204 of the cases was suitable for analysis. Eighty percent of the infections were nosocomial and 20% were non-hospital acquired. The antibiotic management of these 204 cases has been described briefly in another article. This article is a detailed account of the results of the treatment of staphylococcal disease occurring in the pediatric age range over a 2-year period, in a single hospital, and with the utilization of a variety of currently available antibiotic agents. Broad principles of management based upon experience with this group of patients are outlined.

Certain broad principles of management were applied to all of these patients. Suspect and isolation areas were provided and techniques of care

rigidly enforced. Suspect areas were designated for the housing of patients in which the diagnosis of staphylococcal disease was suspected but not definitely proved. Patients with obvious skin infection and with proved staphylococcal disease were placed in isolation. Special nurses were assigned to these areas, and much of the time a particular physician was assigned to the care of patients in suspect and isolation areas. Optimal nursing and physician care served two functions: It assured the patient the best of care, and protected other patients in the unit.

In addition to close supervision during hospitalization, it seemed necessary to keep the young infants under close surveillance for a period of several additional months. This was accomplished by supplementation of clinic visits with home visits by public health nurses oriented to this problem. A significant number of infants required readmission for either a recurrence of the original manifestation or involvement of another system.

A large number of the children with serious disease had multiple sites of involvement. In many cases, it was difficult to decide which site was primary or most significant in the patient's course. In the newborn period, particularly, it is almost meaningless to separate a discussion into the entities of septicemia, meningitis, osteomyelitis, and pneumonia because dissemination is so rapid and frequent. However, because the choice of type of medical or surgical mangement depends so largely on the major area of involvement, an attempt is made to discuss the specific methods of management by the major site of disease.

The importance of two factors, the source of the infection and the type of host in the evaluation of any therapeutic program for staphylococcal disease, was mentioned. In general, it was felt that infections acquired outside of the hospital were, as a group, less difficult to treat than the nosocomial ones. The factor of environment in which the infection was acquired cannot be considered alone, however, because the extrahospital infections tended to occur in older children and hospital-acquired infections were most common in the most vulnerable subject, the newborn infant. Hospital-acquired disease was usually severe and difficult to manage. The severe nature of the pathologic processes encountered posed the question of whether the use of large amounts of antibiotics at Jefferson Davis Hospital had permitted the emergence of highly resistant strains of staphylococci. Not only had antibiotics been used extensively in this general hospital for the treatment of patients of all ages, but unusually large amounts of antibiotics had been used in the pediatric age group because of recurrent staphylococcal outbreaks in the newborn infants' nurseries. The majority of strains infecting newborn infants were epidemic type 81 and were resistant to penicillin, tetracycline, streptomycin, and erythromycin.

The influence of the condition of the host (age and degree of maturity) upon the course of staphylococcal disease is clearly evident from the data presented in the article. Morbidity, mortality, and relapse rate were all

higher in the newborn age group than in older infants and children. The mortality rate in premature infants was significantly higher than in the full-term newborn infants or older children. The inability of the newborn child to localize staphylococcal infection is shown by the percentage of newborn babies with disseminated disease as compared to the percentage of older infants and children with multiple sites of involvement.

In the description of the treatment of the 204 children in this study, erythromycin, chloramphenicol, novobiocin, and the tetracyclines are referred to as "bacteriostatic" and penicillin, streptomycin, kanamycin, and bacitracin as "bactericidal." They are classified under these two modes of action upon staphylococci in accordance with the data of Wise and Yow and Monzon. The results of therapy of the 138 children with serious staphylococcal disease in this study seem to indicate a definite relationship between bactericidal activity and efficacy of therapy, particularly in patients with poor defense mechanisms and in patients with large numbers of infecting organisms. Analysis of results of treatment in the present series shows kanamycin and bacitracin to be highly effective against the staphylococcus both in vitro and in vivo. As in the use of any drug, the danger of the potential toxicity of these agents must be weighed against the seriousness of the patient's illness. Vancomycin is bactericidal for the staphylococcus in vitro, and good results have been reported following its use. However, vancomycin was used infrequently in this series of patients because of the difficulties involved in long-term administration of the drug intravenously in the pediatric age group. The same problem limited the use of ristocetin. Neomycin is a powerful antistaphylococcal drug, but was not used because of its marked toxicity.

Emergence of strains of staphylococci resistant to kanamycin and bacitracin was not a problem in the individual patient while under treatment. Strains of staphylococci isolated from the hospital community also remained sensitive to these two antibiotics during the period of this study. Conceivably, the predominant strains in hospitals using these antimicrobial agents may eventually prove to be resistant to kanamycin and bacitracin. Because these antibiotics are potentially toxic and must be administered by the parenteral route, it is unlikely that they will be used indiscriminately. If emergence of resistant strains occurs, it will probably be at a much slower rate than has been experienced in the use of the more widely administered antibiotics.

The management of staphylococcal disease in the young infant differs from that in the older child. All staphylococcal infections must be considered potentially serious in the young infant because of the atypical manifestations and unpredictability of the course of staphylococcal disease in this age group. In the older child, superficial infections may be safely treated with local therapy. Controlled studies are needed to establish the best method of management of infants with superficial infections, such as impetigo neonatorum and conjunctivitis, now that the majority of these infections are due to the highly invasive strain 81. Regardless of the choice of antimicrobial agent

and its route of administration, close surveillance of these patients is necessary. Moderately severe infections, such as deep subcutaneous abscesses, occurring in the older child can be expected to respond to bacteriostatic antistaphylococcal drugs and local care. Subcutaneous abscesses and breast abscesses occurring in the young infant should be treated with a bactericidal antistaphylococcal drug and local care. The prognosis of severe staphylococcal disease in all age groups is so grave that intensive treatment with a bactericidal antibiotic or a combination of a bactericidal drug and a bacteriostatic drug is indicated.

Adequate incision and drainage are essential because of the ability of the staphylococcus to remain viable within abscesses. In instances where it is difficult to insure adequate drainage, it may be advisable to instill a bactericidal antibiotic directly into the infected cavity. In infants, in other individuals who handle infection poorly, and in patients with undrained localized infections, it is necessary to continue therapy for a prolonged period in order to prevent relapses of infection. (Yow, M. D., Desmond, M. M., Nickey, L. N., The Management of Staphylococcal Disease in Infants and Children: J. Pediat., 54: 409-427, April 1959)

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Repeated Poisonous Snakebites in Man

Poisonous snakebites are not rare in the United States, particularly in the southern and southwestern States. It has been estimated that from 2000 to 3000 snakebite accidents occur each year in the United States; during the period, 1950 - 1954, there were 71 deaths. This problem is not confined to this country, for Swaroop and Grab of the World Health Organization estimated that between 30,000 and 40,000 humans succumb to snakebites annually throughout the world.

Two families of poisonous snakes are indigenous to the United States: the Crotalidae or pit vipers, and the Elapidae or coral snakes. Of the pit vipers, the genera found in this country include the Crotalus or rattlesnakes; the Ancistrodon or mocassins (including the copperhead or highland moccasin and the cottonmouth or water moccasin); the Sistrurus or pigmy (massasauga) rattlesnakes. Pit vipers are responsible for most of the poisonous snakebites in this country; less than 2% of the bites are inflicted by coral snakes. One or more species of poisonous snakes has been reported as native to each state in this country.

This study reports the case histories of 14 patients who have experienced two or more envenomations by North American pit vipers. Repeated poisonous snakebites in the same individual are not as rare as some people think. This is particularly true among persons who handle poisonous snakes routinely. Poisonous snakebites are an occupational hazard among professional

and amateur herpetologists, biologists, museum reptile curators, and religious faddists who use poisonous snakes as a part of their ceremonial regalia.

What are the effects of repeated poisonous snakebites in the same individual? The three concepts commonly held are: (1) that repeated envenomations wil render the victim immune to venom and lessen the danger of future bites; (2) that the individual will develop an allergy to the complex proteins of the venoms, making each subsequent bite more dangerous and inviting the possibility of an anaphylactic reaction; and (3) that previous poisonous snakebites will have no effect on subsequent bites. A study of the effects of repeated poisonous snakebites in humans seemed worthwhile because there have been few case histories describing this phenomenon, there have been no reports of successful immunization to the venoms of North American pit vipers among humans, and allergy to the venoms of North American pit vipers has not received much attention.

Of the 14 patients with repeated poisonous snakebites, one patient experienced 12 different poisonous snakebites, one had 10 poisonous snakebites, 2 had 6 bites, one had 5 bites, 3 had 4 bites, one had 3 bites, and 5 had 2 bites. Thus, these 14 individuals had a total of 64 poisonous snakebites.

The kinds of snakes involved in these 64 snakebite accidents were: rattlesnakes (Crotalus sp.), 29 bites; cottonmouth moccasins (Ancistrodon piscivorus), 18 bites; copperhead moccasins (Ancistrodon contortrix), 10 bites; pigmy rattlesnakes (Sistrurus sp.) caused 4 bites; and snakes which are not native to the United States (Bothrops atrox, Coniophanes sp., and Demansia olivacea) caused three bites. Sixty-one of the 64 snakes which bit these individuals were North American pit vipers. A Table shows the severity (Grades: Grade I - minimum venenation; Grade II - moderate venenation; Grade III - severe venenation) of venenation resulting from bites by the various kinds of snakes. Thirty-one percent of the bites inflicted by rattlesnakes (Crotalus sp.) resulted in Grade 3 severe venenation, whereas only 22% of cottonmouth moccasin bites and 20% of copperhead moccasin bites resulted in Grade 3 venenation. None of the pigmy rattlesnake (Sistrurus sp.) bites produced Grade 3 venenation. That the rattlesnakes (Crotalus sp.) produced the highest proportion of severe venenations was to be expected because they generally are regarded as the most dangerous snakes in the United States.

From these 14 case histories, it seems apparent that no permanent immunity develops as a result of repeated envenomations by North American pit vipers. Permanent immunity to pit viper venoms has never been demonstrated in humans, although theoretically it would seem possible. One factor which may have inhibited the development of permanent active immunity in some of these patients was the administration of antivenin for treating the bites. When active and passive immunity are administered simultaneously,

a high titer of passively transferred antibodies may inhibit the development of active (permanent) immunity. However, 5 patients in this study have never received antivenin for the treatment of their snakebites. One or more envenomations in 12 of these patients were not treated with antivenin. Therefore, antivenin inhibition of active immunity would not seem to be a major factor in the lack of permanent immunity in these patients. Bites by different species of pit vipers may have accounted for some of the lack of permanent immunity. Inconsistencies in the dose of venom received at each bite may have played a role in the lack of permanent immunity.

Permanent immunity in experimental animals is produced by increasing the dose of venom at frequent intervals of time. One of the most important reasons why these patients failed to develop a protective level of active immunity was the prolonged and irregular intervals between envenomations. It has been shown in horses used for antivenin production that when the injections of venom are stopped, the protective titer of antibodies rapidly wanes. Another important factor is the short "incubation period" between a poisonous snakebite and the time when signs and symptoms of clinical envenomation become apparent. In contrast to infectious diseases which have an incubation period of from 14 to 21 days, the "incubation period" for snake venom poisoning is only 2 to 15 minutes. This very short latent period does not provide sufficient time for a "booster effect" on antibody production. A high titer of antibodies must be present at the time of the envenomation, or shortly thereafter in order to neutralize the venom. Thus, while active immunization of humans to snake venoms probably is possible by frequent injections of venom, antivenin therapy would seem a much more rational approach to the problem.

This study would seem to indicate that blood from patients with a history of previous pit viper envenomations is no better for transfusions in treating snakebites than the blood of normal healthy persons who have not been snakebitten. The authors know of several instances where snakebite victims have been transported long distances to receive transfusions from persons who previously have been bitten. This practice is to be condemned. Regardless of their motivations, professional snake handlers, herpetologists, and physicians should discourage this practice.

Hypersensitivity to pit viper venom is by no means rare among patients with repeated envenomations. Four patients in this study were allergic to cottonmouth moccasin or rattlesnake venoms, or both. Snake venoms are complex substances comprised chiefly of proteins. Thus, there is a definite possibility of developing allergy to these animal proteins. Deaths have been reported which resulted from allergy to other animal venoms including bee, wasp, and yellowjacket venoms. It seems entirely possible that occasional deaths from snakebites in individuals who have been previously bitten may result from snake venom allergy.

Serious poisonous snakebites need not terminate fatally. All patients in this study are experts in first-aid measures used for snakebite. Prompt

application of a tourniquet with incision and suction of the wound undoubtedly saved some of their lives. Also antivenin was used rather freely (40 to 50 ml.) in most of the episodes of Grade 2 and Grade 3 venenation. Antivenin may be considered specific therapy for pit viper envenomation. As a result of antivenin (made from horse serum) treatment, 4 of the patients developed hypersensitivity to horse serum. In some instances, the danger of antivenin (horse serum) allergy is more threatening than venom intoxication to patients who have been snakebitten.

The results obtained in this study would seem to indicate that repeated envenomations by North American pit vipers do not produce permanent immunity in man, that some persons with repeated poisonous snakebites develop allergy to snake venoms which may make subsequent bites more dangerous, and that the severity of subsequent bites in nonallergic patients depends on the characteristics of the particular snakebite rather than the cumulative effects of previous snakebites. (Parrish, H. M., Pollard, C. B., Effects of Repeated Poisonous Snakebites in Man: Am. J. M. Sc., 237: 277-285, March 1959)

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Acute Rheumatic Fever in the Adult

Acute rheumatic fever is generally considered to be a disease of childhood; the peak incidence of the disease is in the 10 to 14-year age group. Adults, however, are also susceptible, but the diagnosis of acute rheumatic fever is often more difficult for several reasons: first, because of similarities to other polyarthritides common in adults, such as early rheumatoid arthritis, systemic lupus, gout and the like; second, because such major manifestations as chorea, erythema marginatum, and carditis are less frequent in the adult; third, because in the patient with previous rheumatic heart disease, the mere presence of heart murmurs, as well as of various nonspecific findings such as fever, increased erythrocyte sedimentation rate, the appearance of acute phase reactants, and electrocardiographic abnormalities may indicate complications of rheumatic heart disease other than recrudescence of activity. Finally, because acute rheumatic fever is generally considered a childhood disease, the physician often fails to consider it seriously in the differential diagnosis in the older age groups.

This study describes the manifestations of acute rheumatic fever as they occur specifically in the adult patient, and discusses the differences and similarities between the disease in the adult and in the child. The questions of proper antibiotic treatment of streptococcal infections and prophylaxis of rheumatic fever in the adult are also discussed.

There were 12 males and 18 females in this series. The age range was from 21 to 59 years with 50% of the patients between the ages of 21 and 30. Seventeen were of Puerto Rican birth or extraction, 5 were Negro, and

8 were white. Fourteen patients were seen in what appeared to be the initial attack of rheumatic fever, although prior subclinical rheumatic fever could not be excluded. The shortest interval between known attacks of acute rheumatic fever was 7 months, the longest was more than 35 years. In 10 patients, acute attacks developed 5 or more years following the preceding episode of acute rheumatic fever. No patient in this series was receiving antibiotic prophylaxis at the time of his recurrent rheumatic fever.

Fourteen of the 30 patients had known rheumatic heart disease prior to the observed episode of acute rheumatic fever. Of these, 2 had recurrent pulmonary infarctions and one had renal infarction as a complication of the heart disease. The remaining 16 patients had no knowledge of preceding heart disease. One patient each had hypertension, nephrosclerosis, chronic otitis media, intestinal parasites, and previous acute glomerulonephritis.

Sixty percent of the patients gave a history of an upper respiratory infection preceding the onset of rheumatic fever. In 28 of the 30 patients, the onset of acute rheumatic fever was heralded by symptoms or signs referable to the joints. Arthralgias were the first symptom in 70%, overt arthritis initiated the disease in 20%, and fever and arthralgias were first noted concomitantly in one patient. Of the remaining 2 patients, one began with cough and the other who had pericarditis noted chest pain as the first symptom.

Twenty-seven of the 30 patients were noted to have some type of cardiac murmur on admission. In 12, the only murmur present was a soft grade 1 or 2 systolic murmur, usually apical in location and not considered indicative of valvular involvement. The remaining 18 patients presented with an apical or basal systolic murmur of grade 3 intensity or greater, or with a definite diastolic murmur indicative of valvular disease. Of these, 12 patients had pre-existing rheumatic valvular disease. Mitral valvular murmurs were noted somewhat more frequently than aortic murmurs. Fourteen patients fulfilled the criteria for the diagnosis of acute rheumatic carditis.

In 29 of the 30 patients, drug therapy was started as soon as the diagnosis of acute rheumatic fever had been established; because of the mild nature of the disease, one patient was treated with bed rest alone. In over two-thirds of the patients, more than one week had elapsed between the onset of their disease and the time they sought medical attention and 7 patients had noted their symptoms as long as 3 weeks before seeking treatment. Once hospitalized, treatment was instituted in most patients on the first or second day of hospitalization.

A wide variety of therapeutic regimens was employed in this series, including salicylates alone, and salicylates and hormones in various combinations. In some cases, the initial type of treatment was subsequently modified, i.e., a different drug was substituted for the one used initially, or another drug was added. These modifications of treatment were generally the result of an inadequate response to the first drug or the reappearance of signs of rheumatic activity when the first drug was withdrawn. The question

of retreatment and the "rebound phenomenon" will be discussed more fully in another publication. The therapeutic regimens employed in this series are summarized in a Table.

There were two deaths in this series. The other patients left the hospital after varying lengths of time completely free of symptoms and signs of rheumatic activity.

The objective findings of joint inflammation disappeared within the first 2 days of treatment in all patients. Arthralgias persisted in a few patients for 3 to 5 days after arthritis was no longer evident, but in general, this symptom too disappeared promptly with the start of treatment.

The effects of therapy on the cardiac manifestations of rheumatic fever were somewhat variable. In the 2 patients with pericarditis, the pericardial rub and effusion disappeared by the fifteenth day of treatment with prednisone in one patient, while signs of pericarditis in the other patient persisted despite 2 weeks of cortisone therapy with doses up to 300 mg. daily, subsiding shortly after the addition of salicylates to the regimen. These patients who were in congestive heart failure on admission improved with antirheumatic therapy in combination with the usual cardiotonic measures, such as digitalis, diuretics and the like. A change in the quality or intensity of the cardiac murmurs or the appearance of new murmurs was infrequent. In only two instances, did a significant murmur, present on admission, become inaudible after therapy was started.

Fever subsided promptly with institution of therapy, usually on the first or second day and in the majority of cases no later than the third day. Tachycardia tended to parallel the fever, slowing of the heart rate occurring concomitantly with the subsidence of fever. In some instances, tachycardia persisted despite the presence of a normal temperature and the absence of other clinical and laboratory manifestations of persistent rheumatic activity.

In general, the more acutely ill patients with clinical evidence of carditis received the adrenocortical hormones. The remainder received salicylates except for the one patient who was given no drug therapy.

The authors' impression, in conformity with that of others, was that the adrenocortical hormones were not distinctly superior to salicylates in suppressing the acute manifestations of the disease. However, because the possible preventive effect of hormones on the ultimate cardiac damage is still an unsettled question, they employed them alone or in combination with salicylates when there was unequivocal evidence of carditis. Aside from mild salicylism in a few patients which responded promptly to reduction in dose, and the appearance of a "cushingoid facies" in patients receiving hormones, there were no significant side effects of treatment.

The authors endeavored to institute treatment as soon as the diagnosis was established. However, many patients did not seek medical care immediately after onset of their symptoms and in some cases first received inadequate suppressive therapy (usually aspirin) with partial relief of

symptoms, thus delaying adequate treatment for several days or weeks. The importance of early treatment is emphasized by the findings of Massell and others: that the effect of hormone therapy in preventing valvular damage—at least as judged by the disappearance of murmurs under therapy—is definitely related to the duration of illness prior to the onset of therapy; that decrease in cardiac enlargement appears to depend to a large extent on the duration of the illness prior to the onset of therapy; and that decrease in cardiac enlargement appears to depend to a large extent on the duration of the disease at the time that hormone therapy is begun.

No statement is possible at this time concerning the incidence of valvular damage following the attack of acute rheumatic fever in the adult patients in the present series. The incidence of acute carditis in the adult appears to be less than in childhood; it is possible that the incidence of valvular disease also may be less in the adult group. No acceptable data on this point are yet available. (Pader, E., Elster, S.K., Studies of Acute Rheumatic Fever in the Adult - I. Clinical and Laboratory Manifestations in Thirty Patients: Am. J. Med., XXVI: 424-440, March 1959)

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Treatment of Malignant Testicular Tumors

Malignant testicular tumors present a heterogeneous group with regard to the pathological-anatomical picture, radiosensitivity, and prognsosis. As for the treatment, the literature displays a difference of opinion, especially regarding the extent of the surgical intervention, but also regarding the advantage of radiation treatment in all cases and the doses of x-ray to be applied.

It is generally agreed that for the most radiosensitive type—the seminoma—the treatment should be conservative, i.e., orchiectomy followed by x-irradiation covering the iliac and lumbar lymph nodes. As to the amount of the dose, opinions are divided. Dean recommended a tumor dose of 2500 r, Dixon and Moore, one of 1000 to 1200 r only, and Notter gave 2400 r (measured as skin dose) to an anterior and a posterior field. For the other tumor forms—embryonal carcinoma, teratocarcinoma, pure teratoma—Dixon and Moore used only surgical treatment with orchiectomy and radical glandular toilet, including removal of the retroperitoneal nodes. As these tumors are highly radioresistant, the authors considered x-ray treatment to be purposeless. Dean shared their view, but as he often found radical removal of the retroperitoneal nodes difficult, he recommended orchiectomy followed by x-irradiation with a tumor dose of 4000 to 5000 r. If pulmonary metastases had not appeared within 4 weeks after the x-ray treatment, he claimed that radical glandular toilet should be performed. Notter, on the other hand, observed no marked difference in the radiosensitivity of the various types

and found that prophylactic irradiation was always indicated. He gave 2400 r (skin dose) to an anterior and a posterior field. Raines and Hurdle recommended prophylactic high voltage x-ray treatment, but did not give their opinion on how radical the surgical therapy should be.

This article discusses conditions of possible importance to treatment, especially with regard to radiotherapy, based on experience at the Norwegian Radium Hospital. In Norway, with a male population of about 1,677,000, the Norwegian cancer Registry gives the number of registered malignant testicular tumors as about 50 per year which constitutes 1.3% of all malignant tumors in men.

The present series includes 300 cases. For 297, the diagnosis was verified by histological examination of the primary tumor. Of these, 256 have been revised and classified. For the remaining 41, the diagnosis was histologically verified earlier, but the slides were not available for revision. A Table shows the distribution of the cases to the various tumor forms. For comparison, the distribution of the histological types in some other material is given. This series shows a greater frequency of seminomas which may be real or the expression of a difference in the criteria for the classification.

The average age was 37 years; the youngest patient was 6 months of age and the oldest 73 years. The average age for the patients with seminoma was 38 years, while for those with embryonal carcinoma and teratoma, it was 33 years.

In general, the treatment of testicular tumors consists of: (1) conservative surgery, i.e., orchiectomy followed by x-irradiation, or (2) radical surgery, i.e., orchiectomy and radical glandular toilet, sometimes supplemented by postoperative x-ray treatment. Based on the authors' experience and that of others, it is believed that the most rational treatment of the seminomas is orchiectomy followed by prophylactic x-irradiation. The authors' results indicate the importance of the largest possible x-ray dose also for seminomas. For this tumor form, a dose of 3500 to 4000 r should be applied. Preferably, high voltage treatment should be employed because of the favorable distribution of the doses thus produced.

In the present series, 2 patients died from chronic renal disease, possibly induced by x-irradiation. There seems to be no certain information concerning the threshold value of the occurrence of renal complications. Blood pressure and urine control should be part of the routine follow-up examinations of patients who have had x-ray treatment with large doses over the renal region. Treatment fields should cover the lymph-drainage area of the affected testicle, i.e., from the inguinal canal to the para-aortic nodes situated at the bifurcation of the aorta, and further up toward the diaphragm. Because of the numerous anastomoses between the lymphatics on both sides of the spinal column, the treatment field should here reach 5 cm. beyond the midline onto the nonaffected side. Whether the mediastinum also should be prophylactically irradiated may be subject to discussion. This would imply

added strain on the patient. The results of Pendergrass et al. do not indicate that this would noticeably improve the prognosis.

The embryonal carcinomas and teratomas are more highly malignant and radioresistant than are the seminomas. This is reflected in the treatment results. Dixon and Moore found that radical surgery gave better results for these tumors, although the difference was not statistically significant. To the authors' knowledge, no clinical trials have been made in which patients with embryonal carcinomas and teratomas, selected at random, have been treated either by radical surgery or by orchiectomy and prophylactic irradiation. Therefore, the authors present no findings as to which is the better treatment. By the use of combined orchiectomy and prophylactic irradiation, the largest possible tumor dose should be applied (4000 to 5000 r), the aforementioned reservations regarding the treatment of seminomas duly considered.

In one of the 30 of the present series, a malignant tumor developed in the contralateral testicle a shorter or longer time after the primary treatment. In a collected material of about 7000 cases, Gilbert and Hamilton found the frequency of bilateral testicular tumor at 2%. This indicates that, once a patient has a testicular tumor, the probability of secondary development in the contralateral testicle is greater than for unilateral development of the disease in a normal individual. Gilbert and Hamilton found the occurrence of bilateral testicular tumor as a rule combined with ectopic situation of the testicle.

The majority of patients were treated with orchiectomy and prophylactic x-irradiation. Results indicate a better prognosis for patients with seminomas after irradiation with relatively large tumor doses (2700 or more r to the lumbar nodes). Likewise, the advantage of using the largest possible dose of x-ray for the more radioresistant tumors (embryonal carcinomas and teratomas), especially when a radical operation is not performed, is emphasized.

It is pointed out that, in the present series, the patients with the most malignant testicular tumors as a rule had the shortest history of symptoms. (Höst, H., Stokke, T., The Treatment of Malignant Testicular Tumors at the Norwegian Radium Hospital: Cancer, 12: 323-329, March-April, 1959)

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Change of Address

Please forward requests for change of address for the News Letter to: Commanding Officer, U. S. Naval Medical School, National Naval Medical Center, Bethesda 14, Md., giving full name, rank, corps, and old and new addresses.

Intracranial Meningiomas

The literature dealing with intracranial meningiomas is voluminous. A large number of articles and monographs have appeared describing the pathology, common locations, clinical features, roentgen findings, and treatment of these tumors. Some studies are classic and best read in the original. In this article, the authors evaluate their own material consisting of 126 proved cases, each including one or more intracranial meningiomas seen at Montefiore Hospital in New York City, and describe certain roentgen criteria characteristically observed in these lesions. Plain-film evaluation is emphasized. The use of air studies is briefly mentioned. The importance of cerebral angiography is stressed and the advantages of the biplane method of cerebral angiographic examination is discussed.

Conventional Roentgenography. The standard plain-film examination includes stereoscopic postero-anterior, steroscopic left lateral, single right lateral, anteroposterior Towne-Chamberlain and, in special situations, submentovertex views.

Air Studies. Roentgenograms are obtained in both the horizontal and erect positions in stereoscopic pairs. Stereoscopic brow-down and brow-up views are made, as well as special horizontal-beam temporal horn projections. A Robertson position is added for delineation of the fourth ventricle, and a midline laminagraphic cut for outlining the midline structures, particularly the aqueduct and fourth ventricle.

Cerebral Angiography. For the past two years, the authors have been using a biplane Schönander film-changing device incorporating two 500-ma generators with 14 x 14-inch cut film permitting up to thirty exposures in each of the two planes simultaneously. The equipment was originally purchased for specific use in selective catheter angiocardiography, but its adaptation to cerebral angiography was surprisingly effective.

In the usual cerebral angiographic examination, a speed of 3 films per two seconds carried through for a total period of nine seconds is sufficient. A total of 10 films in each of the two planes is obtained. The authors have been employing 50% Hypaque, usually 10 cc., but recently attempts have been made to reduce the amount to 6 or 8 cc. All injections are made by the percutaneous route.

The advantages inherent in the use of the biplane Schönander unit are: (a) Scout films prior to the injection are readily obtained. These insure optimum positioning and technique. (b) Usually, only one injection of medium is needed, thus reducing the potential hazard to the patient. If a second study is necessary for special positioning, i.e., aneurysm delineation, then

a second injection only, rather than three or four as with single-plane examinations, is required. (c) Positioning of the patient on the special mobile table is considerably easier than with other serialographic units. (d) A larger film area (14 x 14 inches) in each plane permits not only inclusion of the entire skull (and face) but the major portion of the neck. Thus, the carotid bifurcation is always seen, with an excellent demonstration of the differential filling of the internal and external carotid artery as well as determination of technical failures (extravasation, intimal injections, temporary spasm). (e) Great flexibility in sequential timing is available. (f) The visualization of simultaneously exposed biplane roentgenograms permits a 3-dimensional reconstruction of the vascular system not available with single plane studies. (g) Small vessels hitherto difficult to define are magnified sufficiently for detection without loss of clarity. (h) The time for the examination is materially shortened. (i) Marked reduction in radiation to the operator will result when the problems currently encountered in the use of the matching Gidlund automatic syringe are resolved.

The incidence of age and sex in this series is consistent with that described in the classic literature dealing with meningiomas. The greatest number of cases are seen in the fifth to the seventh decades. The proportion of females to males was in the order of 7:4. There was no significant laterality, 66 of the 126 patients showing the lesion on the left side, 53 on the right side, 6 bilaterally, and one in the midline.

The presence of a meningioma may be strongly suspected from the findings on the plain roentgenograms. The most common diagnostic features are localized hyperostosis, increase in vascularity, and psammomatous calcification. Atrophy of the dorsum sellae and a significant pineal shift are not specific for meningiomas because these abnormalities may be seen with any intracranial mass lesion. Enlargement of the foramen spinosum in the submentovertex view (because of the increase in size of the middle meningeal artery) has been reported, but has not been detected in the present series. Actually, the findings on the plain films may be so specific that the neurosurgeon can perform a craniotomy in certain cases without further study, i.e., pneumoencephalography, ventriculography, or cerebral angiography.

There are no characteristic findings in the air study which will lead to a definite diagnosis of meningioma except in those instances where a mass is found parasagittally, particularly in a female. In such cases, an inferential diagnosis of meningioma is reasonable. A more comprehensive and detailed analysis of the air studies performed in the present cases is not felt to be practicable or necessary because, in recent years, significantly fewer such examinations have been performed, particularly in the authors' departments. This changing attitude is generally true for all supratentorial lesions, but is particularly applicable in those instances where a meningioma is suggested by the plain films or clinically. Cerebral angiography would seem to be the initial diagnostic procedure of choice except in cases of

suspected posterior fossa lesions. (Jacobson, H. G., et al., Intracranial Meningiomas - A Roentgen Study of 126 Cases: Radiology, 72: 356-362, March 1959)

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Obstetrical Viewpoints upon the Rh Factor

Since the discovery of the Rh factor approximately 18 years ago, much has been written about it from the obstetrical, pediatric, and clinical pathologic points of view. Much confusion exists regarding the obstetrical significance of the fact that an expectant mother is Rh negative.

Because 14 to 15% of the American white population is Rh negative, about 12% of all marriages will be incompatible from an Rh standpoint, i. e., the wife Rh negative and the husband Rh positive. Potter states that the incidence of erythroblastosis fetalis due to Rh incompatibility occurs in approximately one out of every 252 pregnancies (all Rh types) and in one out of every 37 Rh negative mothers. Levine states that the incidence is one in 150 pregnancies (all Rh types) and one in every 26 Rh negative mothers. In the present study, 60,824 pregnant patients were examined. Of that number, there were found 8,515 Rh negative mothers who gave birth to 135 infants affected by hemolytic disease. The incidence in all pregnancies was found to be one in 450; the incidence among Rh negative mothers was found to be one out of 62.

The incidence in this study is much lower than that stated by both previous authors. The only explanations offered are that: in this study, erythroblastosis from other causes was carefully excluded, and also some previable abortions due to Rh incompatibility were obviously—although inadvertently—omitted.

Even if one takes Potter's figure, which is median, it can be seen that most Rh negative women can have children who are clinically unaffected by erythroblastosis fetalis.

Immunization to the Rh factor may occur in two ways, either by blood transfusion with Rh positive blood or by a previous pregnancy in which the infant was Rh positive. In this series, it was found that 113 women had been immunized by previous pregnancies and 22 by blood transfusion. Of the latter number, 14 were immunized by intravenous transfusion and 8 by intramuscular transfusion; of the 8, three had been given intramuscular blood when they themselves were infants. Fortunately, this practice has been discarded.

Certain information must be obtained on both primigravidas and multigravidas for an Rh negative history. In both instances, a history must be obtained of transfusion, the genotype of the husband, titer studies, indirect Coombs' test at 37 weeks, and studies on cord blood at the birth of the baby.

In addition, from multigravidas must be obtained a history of the previous pregnancy or pregnancies, the Rh status of previous children, titers and indirect Coombs' test in early pregnancy, i.e., before the fourteenth week. This information enables one to make a fairly accurate prediction as to the outcome in a given case. Because there is no definite correlation between titer strength and the severity of the disease, a great deal of reliance cannot be placed on titer studies.

Practically all authors agree that premature termination of pregnancy is undesirable as the combination of prematurity and erythroblastosis is very hazardous. In contrast to premature delivery, so-called preterm delivery, i.e., when the baby is considered mature (more than 37 weeks), has been advocated by many and is thought to have some value, although real proof is lacking. A preterm induction should be done only if obstetrical conditions for induction are favorable and the baby is of reasonable maturity.

Immediately after birth, a complete blood count, serum bilirubin, direct Coombs' test, and determination of the Rh status should be done on cord blood. The cord should be left long and kept moist because it will be used in the exchange transfusion if such is necessary. The cord should be ligated early to prevent an excess transfer of antibodies. Early exchange transfusion is the most important weapon in combating erythroblastosis fetalis. Of the 67 infants exchanged, 59 lived and 8 died. Of the 40 infants who were not exchanged, 22 lived and 18 died.

Future pregnancies constitute one of the most important aspects from an obstetrical standpoint, and advice about them should be given only after very careful evaluation. The genotype of the husband must be considered because the heterozygous husband has a 50% chance of producing a subsequent Rh negative baby which will be unaffected by hemolytic disease of the newborn. In discussing future outlook for Rh negative mothers, these mothers may be classified into four general groups.

Group A includes nonimmunized mothers as shown by no maternal titer studies at any time during the course of any pregnancy, and the fact that all children delivered to these mothers showed no clinical or laboratory evidence of hemolytic disease of the newborn. This group also includes mothers who had delivered no previously affected infants, but who might have had a very weak titer during the course of one or more pregnancies. In this group, the genotype of the husband is of little or no consequence. The vast majority of babies born to this group will be completely unaffected.

Group B includes mothers having delivered one or more mildly to moderately affected infants who survived with appropriate therapy. All subsequent Rh positive children will be affected, hence the genotype of the husband is important.

Group C includes mothers who have delivered one or more liveborn infants severely affected with hemolytic disease of the newborn and dying

in the immediate neonatal period in spite of all therapy. All subsequent Rh positive children will be affected. Therefore, the genotype of the husband is very important.

Group D includes mothers having delivered one or more stillborn infants due to erythroblastosis fetalis. All subsequent Rh positive children born to this group of mothers will be affected; therefore, the genotype of the husband is important. Potter states that less than 10% of subsequent Rh positive children born to this group of mothers will survive with appropriate therapy. (Jacobs, W. M., Obstetrical Viewpoints upon the Rh Factor: Surg. Gynec. & Obst., 108: 485-487, April 1959)

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From the Note Book

1. This report reviews the clinical and pathological findings in an intensive investigation of the authors' first 200 cases of Kuru; their epidemiological observations of these cases and of an additional 600 cases which they were able to document. Kuru is an acute progressive degenerative disease of the central nervous system occurring among natives of the Eastern Highlands of New Guinea. (Am. J. Med., March 1959; D. C. Gajdusek, M. D., and V. Zigas, M. D.)

2. A series of 54 tumors arising from accessory salivary gland tissue of the oral cavity is reviewed. Twenty-five of the tumors were benign, 27 malignant, and 2 unclassified. The most common tumor found was the pleomorphic adenoma (mixed tumor) with 21 cases; followed by muco-epidermoid carcinoma, 15 cases; and cylindromatous adenocarcinomas, 8 cases. (Surg. Gynec. & Obst., April 1959; F. Vellios, M. D., W. G. Shafer, D. D. S.)

3. A review of experience with five different procedures employed for the curative excision of prostatic cancer in 46 patients is presented. The data are reviewed and some tentative statements made regarding the natural history of the disease and the limitations of the different operative procedures. (Cancer, March-April, 1959; W. F. Whitmore, Jr., M. D., A. R. Mackenzie, M. D.)

4. Technique utilizing positive pressure urethrography for demonstration of suburethral diverticula is described. Results in 108 examinations demonstrate its importance as a primary diagnostic tool for the discovery of diverticula. (Radiology, March 1959; E. K. Lang, M. D., H. J. Davis, M. D.)

5. This report evaluates intravenous chloramphenicol in pediatric practice with particular reference to clinical effectiveness, patients' tolerance, side effects, and toxicity. (J. Pediat., April 1959; B. M. Kagan, M. D., N. Felix Balkcom, M. D.)

Management of Mass Casualties - Courses Available to Medical Officers

The Bureau of Medicine and Surgery has a quota of 5 for the course in the Management of Mass Casualties to convene at the Brooke Army Medical Center, San Antonio, Texas, 15 - 19 June 1959.

Requests from interested Career Medical officers are invited. Requests should be in letter form, forwarded via the Commanding Officer and submitted in time to arrive in BuMed by 8 May 1959. Selected applicants will be issued TAD and per diem orders chargeable against the Bureau's training funds.

(ProfDiv, BuMed)

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Military Section - Annual Meeting of A. M. A. June 1959

Title of Panel:	Practice of Medicine in the Antarctic
Moderator:	CAPT C. S. Mullin, Jr. MC USN
Program:	A 20-minute motion picture will be shown to serve as an orientation to actual environmental and living conditions facing personnel assigned to duty in the Antarctic.
Panel Discussion:	Five papers of ten minutes duration with a five-minute discussion after each paper.

1. Man's Survival in a Cold Environment - The Physiology and Anatomy of Cold Weather Medicine - LT Brian C. Dalton MC USNR

The problems of nutrition, personal hygiene, sanitation, housing, clothing, and preventive medicine become extremely important in cold weather living on a semi-permanent basis. A capsule presentation is given of present practices and important advances in these areas which have been made through the Deepfreeze operations.

2. General Medical Problems of Cold Weather Practice and Chronic Cold Exposure - LT Pat B. Unger MC USNR

Material is presented on the nature and incidence of medical conditions encountered in the Antarctic. Particular attention is given to the annual epidemic of respiratory tract infections and the epidemiologic aspects of a closed population in a total isolation. The physiologic correlates of constant cold exposure are discussed along with the surprisingly minimal problem of frost and hypothermic injuries among Deepfreeze personnel.

3. Trauma and Surgical Aspects of Medical Care in an Isolated Cold Weather Environment - LT Joel Drabkin MC USNR (Active Duty)

A brief review is presented of the place of trauma in Antarctic medicine and the significance of problems of evacuation and transportation of injured personnel in a cold weather environment. Surgical treatment is often extremely complicated because of a lack of specialist referral facilities and environmental limitations. Consideration is given to these complications, problems of general anesthesia, and modifications of techniques of dealing with injuries which have been developed in the Antarctic.

4. Medical Considerations in the Selection of Personnel to Live in an Isolated Cold Environment - LT Howard C. Taylor, III MC USNR

A brief historical review is made of the manner in which the present medical standards for the selection of personnel have been evolved from the experiences of past Antarctic expeditions. This is followed by a resume of the current physical standards for Operation Deepfreeze and comments as to how these may be modified in the future. Comment is made on medical conditions which may contraindicate long term exposure to a cold weather environment.

5. Psychiatric Problems of Extreme Isolation in the Antarctic - Captain C. S. Mullin, Jr., MC USN

Psychiatric problems constitute one of the most important aspects of Antarctic medicine. A summary is presented of adjustmental difficulties encountered in the Deepfreeze operations. A survey is also made of factors in personality structure and motivation which are essential for effective performance in the Antarctic.

Discussion: Members of the panel will be available to comment on aspects of cold weather medicine which may be of interest to the audience.

(ProfDiv, BuMed)

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Medical Intelligence Reports (Med-3820-1)

The attention of all Medical officers, particularly those serving at sea or on foreign shore, is invited to the requirements of Article 23-124, Manual of the Medical Department. Compliance with this article is of great importance to the Navy Medical Department and the Navy as a whole.

(ProfDiv, BuMed)

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SUBMARINE MEDICINE SECTION

Information Concerning Recent Revisions in Training

The basic training curriculum for Submarine Medical officers commences and terminates with the assembly and graduation of the line officers' basic submarine course at the U. S. Naval Submarine Base, New London, Conn. It is of six months' duration. A new class is convened in January and July of each year. Inasmuch as Submarine Medical officers must be able to render medical support for all the underwater operations of the Navy, candidates are given that fundamental training required by the duty for which they volunteer. All organizations with which Submarine Medical officers serve are made up of volunteers.

The course is divided into three phases of training:

Phase I is the first portion of the line officers' course.

Phase II is devoted to more specific considerations of the medical aspects of this field of practice. It is believed that the Medical officer must concern himself with many of the subjects taught in the line school in order to provide a proper basic understanding of submarine problems as they pertain to medical science.

Phase III diverges into two channels: Phase III A, leading to duty with nuclear powered submarines, continues at the Nuclear Power School at the Submarine Base, New London, for an intensive indoctrination in the essentials of radiation biology required by such duty. Following the academic work at New London which is part of this basic six months' course, the Medical officer is assigned to an Atomic Energy Commission reactor site for practical indoctrination in the requirements of a radiation surveillance program. Upon completion of this indoctrination, and when required by the shipbuilding program, the Medical officers are assigned to nuclear powered submarines. Those Medical officers entering the nuclear power program via Phase III A receive an intensive and thorough instruction in the essentials of radiation health considerations and will have a splendid grasp of the fundamentals in this new field concerning which all medical personnel will need to know more in the future.

To aid in meeting the Navy's need for medical scientists qualified in radiation biology, two longer and more complete courses are available. One

of these courses begins with six months of academic work at Reed College, Portland, Ore. which is followed by approximately four months spent touring various AEC and Armed Forces installations for shorter local indoctrination courses. An alternative is the full academic postgraduate year at the University of Rochester leading to an M. S. degree. This course, by appropriate choice of elective subjects, permits one to obtain credit toward Board Certification in various medical specialties. Those volunteering for duty in the nuclear power program are required by the Naval Reactors Branch, AEC, to sign an agreement to remain in the program for three years following the date of reporting to a reactor site.

Phase III B is a continuation of the Submarine Medical officers' course as it existed prior to the advent of nuclear power. It consists of training in the principles and techniques of safe diving, underwater physiology, the recognition and treatment of diving casualties, and those medical matters related to duty with underwater activities. Upon completion of this basic six months' course, the Medical officer is assigned to squadrons of diesel powered submarines or to organizations engaged in diving. The normal tour of duty in submarine medicine is for a period of two years following completion of the basic course in submarine medicine.

Medical officer trainees are eligible for extra compensation during certain phases of the training. Upon completion of the respective courses of instruction, Medical officers are assigned to appropriate submarine or diving activities. Those assigned to submarines receive extra compensation according to a schedule based on rank and longevity status; those assigned to billets in connection with the Diving School or Submarine Escape Training Tanks receive extra compensation of $110 per month.

The duties of a Submarine and Diving Medical officer, and the training therefor involve considerable applied physiology, particularly that pertaining to the respiratory and cardiovascular systems. Industrial medicine and toxicology also play important roles in his duties. The nuclear submarine program demands medical knowledge of radiological hazards and safety. Some of the potential billets for Submarine Medical officers also involve training in, and performance of, medical research. In addition, Submarine Medical officers must perform the usual duties of any other Medical officers in regard to care of the sick, sanitation, and health matters.

The Bureau of Medicine and Surgery does not attempt to freeze Medical officers in submarine medicine. Trainees in submarine medicine are expected to complete one tour in this specialty following their course of instruction. This policy is currently adhered to on the following basis: Submarine Medical officers, whether located on ships or bases, perform duties in connection with care of the sick which involve all specialized fields of medicine. Submarine establishments, therefore, have need for Medical officers trained in the various clinical specialties in addition to special training that qualifies them for submarine duties. Submarine Medical officers are, therefore,

encouraged to seek training in other medical specialties during periods of shore duty with a hope that they will return to submarine medicine when again due for sea duty.

There exists a special insignia to designate Submarine Medical officers. Graduates of the training course are not eligible to wear this insignia, nor are they officially designated as qualified Submarine Medical officers immediately subsequent to graduation. They must serve a year with an operational unit and comply with other requirements listed in Article C-7309, BuPers Manual, before actual designation and qualification. Graduates of the training course are, however, eligible for increased pay immediately subsequent to graduation when assigned to such billets.

In addition to the sea billets mentioned above, there are other attractive shore-based billets or additional duty assignments which in all instances offer excellent opportunities for research in submarine and diving medicine and at the same time provide extra pay. These include the Experimental Diving Unit, Naval Gun Factory, Washington, D. C.; the Deep Sea Diving School, Naval Gun Factory, Washington, D. C.; the Naval Medical Research Laboratory with additional duty at the Submarine Escape Training Tank, Submarine Base, New London, Conn.; and the Submarine Base, Pearl Harbor, T. H., with additional duty at the Submarine Escape Training Tank at that activity.

Initial assignment to active duty need not be postponed to coincide with commencement dates of the courses held at the U. S. Naval Submarine Base, New London, Conn. Necessary transfer orders following the initial assignment will be issued for this purpose. Should you desire to apply for this specialized training, your request should be addressed to the Chief, Bureau of Medicine and Surgery (Attn: Professional Division), Department of the Navy, Washington 25, D. C. Applicants who do not meet the physical qualifications specified in Articles 15-29 and 15-30, Manual of the Medical Department, are invited to request a waiver of physical defect. The submission of a completed Standard Form 88 (Report of Physical Examination) as an enclosure to the official request will expedite consideration by the Advisory Board. The following statement is required in the application: "I agree to remain on active duty for six months following the period of service for which I am currently obligated, or for one year following completion of the course, whichever is longer."

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Use of funds for printing this publication has been approved by the Director of the Bureau of the Budget, 19 June 1958.

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DENTAL SECTION

Modification of Dental X-Ray Apparatus

Material and instructions for installation for the modification of dental x-ray apparatus has been distributed by the Dental Division, Bureau of Medicine and Surgery, to all Navy dental facilities having dental x-ray machines. This modification will reduce ionizing radiation and will conform with accepted standards of x-radiation protection.

Activities not in receipt of the material for modification of their dental x-ray machines should notify the Dental Division, Bureau of Medicine and Surgery (Code 612)

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Dental Intern Training in Naval Hospitals

Eight U. S. Naval Hospitals will conduct Navy Dental Intern Training Programs for eighteen Dental officers during Fiscal Year 1960. This training is designed to broaden the knowledge and experience of recently graduated Dental officers in accordance with the standards of the American Dental Association for rotating type internships. The Dental officers and participating hospitals are:

USNH, Chelsea
Gerald L. Hart
Eugene J. Weigel, Jr.

USNH, St. Albans
Richard E. Charlick
David J. Smith
John P. Williams

USNH, Philadelphia
Benton E. Crawford, Jr.
Max B. Daughtry

USNH, Portsmouth, Va.
John H. Hanley
Robert W. Koch

USNH, Great Lakes
James I. Johnson
Larry L. Nash

USNH, San Diego
James V. Gourley
Edwin J. Hancock

USNH, Camp Pendleton
Allen K. Brown
Maurice C. Hack, Jr.

USNH, Oakland
Peter W. Connole
Richard G. Preece
Lloyd R. Tennyson

RESERVE SECTION

The Standby Reserve

Department of Defense Directive No. 1235.9, dated 11 February 1959, prescribes uniform policies regarding the management and mobilization of the Standby Reserve. Selected excerpts from this important directive are reprinted herewith for the information and guidance of all inactive Medical Department Reservists concerned.

Responsibilities for Management of the Standby Reserve

1. Military Departments. The Secretaries of the military departments are responsible for:

a. Exercising military control over members of the Standby Reserve.

b. Maintaining such personnel records for members of the Standby Reserve as may be required by law and determined by the military departments to be necessary.

c. Advising individuals who are transferred to the Standby Reserve of their duty to furnish local boards with information as prescribed by Section 1690.10 of Selective Service Regulations.

d. Discharging members of the Standby Reserve in accordance with current policies and procedures.

e. Furnishing information promptly to the Selective Service System upon the assignment or transfer of a Reservist to or from the Standby Reserve and upon any change in military status of a member of the Standby Reserve.

2. Selective Service. The Director of Selective Service is responsible by law for determining the availability of members of the Standby Reserve for involuntary order to active duty in time of war or national emergency declared by the Congress. To fulfill this statutory responsibility, the Director of Selective Service has prescribed that the Selective Service System will:

a. Maintain current information pertaining to the civilian status of each member of the Standby Reserve.

b. Determine, through local boards and appeals, procedures of the Selective Service System and the availability of Standby Reservists for involuntary active duty. In making such determinations, local boards will be guided by Selective Service System policies which provide that:

(1) Consideration will be given to the military need for members of the Standby Reserve who have critical military occupations as well as to the need for critical civilian occupations in the supporting economy.

(2) A Standby Reservist shall be declared nonavailable if continuance in his civil employment, occupation, activity, or other endeavors in time of war or national emergency declared by the Congress is found to be more essential to the maintenance of the national health, safety, welfare, or interest than the performance by him of active duty in the Armed Forces, or if it is determined that his performance of duty in the Armed Forces in time of war or national emergency declared by the Congress would result in extreme hardship or privation to his bona fide dependents.

(3) The availability designation of a Standby Reservist is subject to periodic reevaluation and may be changed at any time such action would better serve the national interest.

c. Furnish the military departments periodically with information concerning the Selective Service determination of availability of individual members of the Standby Reserve.

Mobilization

1. Availability of Standby Reservists for Active Duty. In time of war or national emergency declared by Congress, or when otherwise authorized by law, Standby Reservists who have been found available by the Director of Selective Service may be involuntarily ordered to active duty by the military departments, provided it has been determined that there are not enough qualified members of the required category in the Ready Reserve.

2. Inactive Status List. A Standby Reservist on the Inactive Status List who has been certified by the Director of Selective Service as being available for active duty will not be called into active military service without his consent unless the Secretary of the appropriate military department determines that adequate numbers of qualified members of the Reserve components in an active status or in the inactive National Guard in the required category are not readily available.

3. Volunteers for Active Duty. A member of the Standby Reserve who volunteers in writing for active duty shall be considered available for active duty and may be ordered into active military service by the appropriate military department pursuant to Subsection 672(d), Title 10, United States Code. A determination of availability by the Director of Selective Service is not required and shall not apply in such cases. The appropriate State Director will be notified in such cases.

4. Nonavailable Members of the Standby Reserve. The Director of Selective Service has prescribed that members of the Standby Reserve who have been certified as not available for active duty shall be considered

periodically to determine their availability to meet future requirements. Eighteen months after the initiation of general mobilization, the military departments shall review the cases of those Standby Reservists who have not been certified by the Director of Selective Service as available for active duty and, in the absence of cogent considerations to the contrary, shall separate such members from the Reserve.

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Training in Diving Medicine

Reserve Medical officers are reminded they are eligible to attend a two week "short course" in diving medicine. This will be a course of lectures and demonstrations in the recognition and treatment of diving casualties. The next session of this course will convene on 13 July 1959 at the Deep Sea Diving School, Naval Gun Factory, Washington, D. C. The usual requirements for Reserve training duty must be complied with as indicated in the listing of available "active duty for training" courses.

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OCCUPATIONAL MEDICINE

Machining Beryllium

Light weight, high melting point, and durability make beryllium desirable for use in missiles and aircraft. However, minute dust particles produced when machining beryllium can cause lung disorders. It is, therefore, necessary to protect the health of personnel assigned to the machining of beryllium and beryllium alloys.

A preventive program must be adopted and rigidly followed. Methods of atmospheric control, waste disposal, and personnel protective procedures must be developed as well as educational and medical programs.

Maximum Allowable Concentrations. The average in-plant atmospheric concentrations of beryllium or its compounds through an 8-hour day should not exceed two micrograms per cubic meter. Although the daily average might fall within the above limits, personnel should not be exposed to a concentration greater than 25 micrograms per cubic meter for any period, however short. In the immediate area surrounding the plant machining beryllium compounds, the average monthly concentration at the breathing-zone level should not exceed 0.01 micrograms per cubic meter.

Contaminated Air Removal and Filtering. To maintain work area and out-plant concentrations within these limits, a high-velocity, high-efficiency exhaust and filter system should be used. At the point of machining operation, the air should be exhausted through 5-in. "sucker" hoses. The face velocity at the hose should be maintained between 3500 and 5720 feet per minute (fpm) (477 to 681 cubic feet per minute (cfm)) varying with the number of hoses used. The system should be designed for maximum use of six hoses simultaneously.

To salvage pure beryllium and to meet restrictions against contamination imposed by the salvage reprocessors, a baffled collection barrel may be installed in the individual hose lines to entrap heavy beryllium particles. The barrel collects large particles of waste beryllium, permitting the smaller particles to continue in the air stream.

The stream may be drawn through a series of five cyclone-type separators, where the comparatively heavy particles will be collected, leaving the finer particles to continue into a filter system. The cleaned air may then be exhausted to the atmosphere at plant roof level.

Control Measures. To insure that atmospheric concentrations are maintained within allowable limits, the industrial hygienist should continually monitor breathing zone and general area air. At the outset of the program, an industrial hygienist should spend full time in the area monitoring new machine operations and material-handling techniques. Breathing zone and general air samples should be collected on filter media using high-volume air samplers. Sampling rates may be 25 cfm., with sampling times from 5 to 30 minutes.

In addition, six sampling heads containing filters operated at a rate of 10 liters per minute for 8-hour periods may be maintained throughout the area. One of these heads, located inside the roof stack, may be used to check outside atmospheric pollution.

The industrial hygienist should make weekly inspections of the area and the exhaust equipment and also observe the use of personal protective equipment. These inspections include measuring "sucker" hose velocity; checking the physical condition of hoses and connections; smoke-testing the air currents; and checking the operation of all electrical switches, dampers, and mechanical facilities.

Sampling Analysis and Results. To avoid exceeding the low allowable concentrations and to prevent gross contamination before detecting a malfunction in the exhaust system, a chemical analysis group should determine the content of the air sampling filters. Through the use of spectrography, results of the air sample may be developed in a relatively short time, and corrective steps can be taken promptly on notification that tolerance levels are being approached.

Waste Disposal. Because beryllium particles in waste materials may become air-borne, controls must be continued beyond the plant to insure public safety. Burial underground, burning, and open dumping are to be avoided.

All beryllium waste containers, including those in the area used for waste paper, rags, and scrap, should be conspicuously labelled and, when filled, should be sealed for pickup by a marine disposal company. The disposal company may encase the sealed containers in concrete and dispose of them at an Atomic Energy Commission-approved burial area at sea.

Physical Layout. The beryllium machining area should be laid out to isolate the area from the other general machine and laboratory operations. Partitions should be dust-tight with make-up air in the work room provided through filtered louvers. Spaces under the doors should be weatherstripped and the area checked to insure that negative pressure is maintained. Dry boxes, tied into the exhaust system, may be used in the handling of powdered beryllium.

A separate hygiene area may be located adjacent to the work area. Hygiene facilities consist of a locker room, shower room, and change room, the latter being the passage to the machining room after special work clothing has been donned. In this room, workers leaving the area remove contaminated clothing prior to entering the shower room.

Personal Protective Equipment. A complete change of clothing should be maintained for personnel in the area. Underwear, socks, jumpers, caps, and shoes should be conspicuously labelled to insure they are kept in the area. A smock and pair of marked rubbers are provided for visitors.

Soiled clothing, removed at the end of the work shift, should be placed in a drain barrel and wet down by the individual. A washing machine and dryer should be continuously operated in the change room to insure availability of clean clothing. Personnel should be required to shower before donning personal clothing. Lockers should be provided for storage of personal effects during working hours.

The effectiveness of the exhaust system should be such that the use of respiratory equipment is limited to new processes, handling of powders, and decontamination work. A super microtoxisol twin-cartridge type respirator may be used. Two airline respirators may also be kept on hand for decontamination efforts after an accidental spill of the powdered beryllium.

Employee Education. Employees' cooperation and respect for the material is the key to successful operation. Worker attitude is one of the major problems that arise when a beryllium machining program is started. Through misinterpretation of some statements regarding toxicity, some personnel may develop fears which should be allayed through education. A series of open discussion meetings between workers, industrial hygienists, and safety and medical personnel should be held to review every phase of the program.

Medical Program. All personnel assigned to the machining area should be given thorough physical examinations including a chest x-ray and an interview regarding family history. No one with any indication of possible respiratory conditions should be placed in the program. Follow-up examinations should be conducted every 6 months for as long as an individual is assigned to

the beryllium work with annual physicals after the person leaves beryllium work.

Weekly weight and vital lung capacity check-ups should also be conducted on personnel who may possibly become exposed. A 10% weight or lung capacity loss should be investigated to determine cause.

Minor cuts and scratches should be treated immediately. As an additional precaution, all outside contractor personnel should be examined before and after exposure to the area.

Conclusion. Beryllium, vital to the national security, is toxic when air-borne particles are generated through machining. One company has machined tons of beryllium with no adverse effects, proving that with proper precautions safe production is possible. A program should be set up to monitor and control contamination, provide medical and educational programs, and initiate an adequate waste disposal program. (Kent, J. W., Machining Beryllium: National Safety News, 79: 28-50, February 1959)

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Patch Test Diagnosis of Beryllium Disease

Since 1947, an effort has been made to evaluate the patch test with soluble beryllium compounds as a diagnostic procedure in various syndromes of berylliosis. Sterner and Eisenbud in 1951 proposed that most of the syndromes of berylliosis were the result of allergic sensitization to beryllium. The dermatitis has been proved by the patch test to be of the allergic eczematous type. In chronic granuloma of the skin and acute pneumonitis, the patch test has indicated eczematous hypersensitivity in two or three cases of each disease. In a case of acute bronchitis, the test was negative during the acute course signifying that exzematous hypersensitivity had not developed at the time. In 32 cases of chronic pulmonary berylliosis, the patch test has been 100% positive. In the syndromes of the mucous membranes and dermis, negative patch tests of the epidermis may be expected because it is well known that the entoderm, mesoderm, and ectoderm may become independently sensitive to the same allergen.

Other diseases, such as sarcoidosis, chronic fibrosing interstitial pneumonitis, bronchiectasis, tuberculosis, carcinoma of the lungs, and lipoidosis, have served as controls for the patch test in diagnosis. In several cases in which there was a history of exposure to beryllium compounds, some difficulty was encountered in the interpretation of the positive patch test as pathognomonic for berylliosis. A positive patch test with appropriate concentrations of beryllium salts undoubtedly indicates eczematous hypersensitivity, but perhaps the test may not serve as an absolute diagnostic sign for chronic pulmonary berylliosis.

Respiratory Syndromes of Berylliosis. Of the 32 patients who had chronic pulmonary berylliosis, 5 had no lung symptoms; the abnormality of the lungs was observed on chest x-ray. In three cases the pulmonary function tests were normal or could not be interpreted as alveolocapillary block. In three cases both the radiologist and the clinician were indefinite about the interpretation of the x-ray findings. In one of seven cases the pathologist could not distinguish sarcoid from berylliosis. In two cases, although all other findings indicated berylliosis, the analysis for beryllium gave negative results. In each of the 32 cases there was a definite history of exposure to the dusts and fumes of beryllium compounds, beryllium phosphor, or beryllium oxide in ceramics, and in one case the patient had inhaled the powdered metal. In all cases the patch test was positive. Of the several diagnostic procedures, the history, the histopathologic findings, and the patch test appear to be the most valuable.

Diseases Other than Berylliosis. Data were accumulated on seven patients with pulmonary sarcoidosis. In the case of one patient exposed to beryllium copper alloy, medical testimony in a legal proceeding brought out the fact that under the conditions of exposure the amount of beryllium (1.6%) in the alloy was insufficient to account for the amount of beryllium found in the lungs. The diagnosis of sarcoid was based on the histopathologic study, x-ray films, negative patch tests, and the rapid improvement to normal evidenced by serial roentgenograms and the clinical course. In a second case of exposure to beryllium, the evidence, including a biopsy of a lymph node, was overwhelmingly in favor of sarcoidosis. This was despite the negative Kveim test which, as is well known, may or may not be positive in sarcoidosis depending on the activity or nonactivity of both the allergen and the disease, respectively.

In data on cases of lipoidosis, carcinoma, one case of bronchiectasis, and chronic pulmonary fibrosis with emphysema, the only evidence for berylliosis was the history of exposure.

Chronic Fibrosing Interstitial Pneumonitis (Hamman-Rich Syndrome) Versus Berylliosis. Of the eight cases of Hamman-Rich symdrome, the findings in three were of special interest. In one case there was a history of exposure to beryllium dusts and fumes in a plant and some years later pulmonary symptoms began to appear during pregnancy. It was believed that the clinical findings, x-rays of the chest, and negative patch tests were such as to eliminate berylliosis. Three years later the patch tests again were negative at which time the diagnosis of Hamman-Rich syndrome was made. In another patient a spontaneous flare of the eczematous reaction appeared 14 days after application of the patch tests. This is in accordance with spontaneous flares that occurred among the control persons in a study

of the dermatitis which was reported in 1951. The spontaneous flare indicates eczematous hypersensitivity induced by the patch test.

The third case was the most difficult to interpret in regard to the patch test. Although the history of exposure was definite and the patch tests were positive, the x-rays of the chest were not typical of berylliosis. The granulomatous lesions in the lungs were considered to be those seen in Hamman-Rich syndrome and, coupled with the absence of beryllium in the lungs, would conclusively eliminate berylliosis despite the positive patch tests.

It is well to recall at this point that positive results from an adequately controlled patch test for hypersensitivity of the epidermis or mucous membrane are significant of only one thing, and that is eczematous hypersensitivity. A positive test is not in itself pathognomonic of a pathologic process other than that in the skin or mucous membrane. On the other hand, the positive patch test has been elicited with great consistency in chronic berylliosis. This phenomenon is readily explained because the origin and transport of antibodies in allergic eczematous reactions are now well known. There is great similarity in this respect between berylliosis and tuberculosis.

No correlation could be made between the amount of beryllium in pulmonary tissue, the patch test reactions, or the development of granuloma. In chronic berylliosis the amount ranged from zero to 19.6 microgram (μg.) per 100 gm of tissue. In three cases of sarcoidosis and in one case of Hamman-Rich syndrome, the amount of beryllium varied from 0 μg. to 5.5 μg. In these four cases beryllium granulomatosis was absent and in two the patch tests were negative. Thus, it appears that the development of beryllium granulomatosis in the lungs may depend primarily on the degree of allergic hypersensitivity, although there must be a minimal quantitative relationship between allergen or antigen and antibody in order to elicit a reaction.

Summary and Conclusion. A survey of 37 cases of the respiratory syndrome of berylliosis which included cases of chronic berylliosis, chronic fibrosing interstitial pneumonitis, sarcoidosis, and miscellaneous pulmonary diseases was made with special reference to an evaluation of the patch test with soluble beryllium compounds as a diagnostic procedure. The patch test was compared with (1) history of exposure, (2) pulmonary symptoms, (3) pulmonary function tests, (4) chest roentgenograms, (5) biopsy of the lung, (6) quantitative measurement of beryllium in the pulmonary tissue, and (7) the Kveim test.

The patch test could not stand alone as an absolute pathognomonic sign for the presence of beryllium granulomatosis in the lungs, although a positive test was obtained in all 32 cases of chronic berylliosis. The most reliable of the several diagnostic procedures were (1) history of exposure, (2) chest x-rays, (3) patch test, and (4) biopsy of the lung. Given the history of exposure, typical chest roentgenograms, and positive patch test, it was decided that biopsy of the lung was unnecessary in 25 cases.

In four cases of pulmonary disease other than berylliosis, but with a history of exposure, the diagnosis was based on procedures other than the patch tests which did not permit an accurate interpretation of the pulmonary lesions.

In differential diagnosis of pulmonary diseases having similar clinical manifestations, negative patch test and a history of nonexposure are dependable criteria for ruling out the presence of berylliosis. (Curtis, G. H., The Diagnosis of Beryllium Disease with Special Reference to the Patch Test: A. M. A. Arch. Indust. Health, 19: 150-153, February 1959)

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Chromium Toxicity

Recently, two cases of serious illnesses were reported among civilian employees of military services. Their conditions were allegedly due to working environments which exposed them to prolonged and excessive amounts of chromium compounds.

In view of the foregoing, it was felt appropriate to briefly review chromium and the effects some of its compounds could have on naval military or civilian personnel. Naval occupational health personnel in field activities should pay particular attention to this potentially serious industrial health hazard, especially in areas where personnel may become exposed as in electroplating or spraying paint containing zinc chromate.

The following excerpts were taken from the text, "The Diseases of Occupations," by Donald Hunter, M. D., F. R. C. P.

Chromium derives its name from the Greek word meaning color because its compounds are nearly all brightly colored. It is a silver white, hard, brittle metal. The only workable source of the element is the ore chromic or chrome ironstone.

Uses. Approximately 45% of the world's supply is used for alloys, about 40% for refractories, and 15% for chemical purposes. The only commercial use of pure chromium metal is in the form of electroplate. The chromates of lead, zinc, and barium are known as chrome pigments and are extensively used for coloring paints, linoleum, rubber, and ceramics.

Toxicity. The toxicity of chromium compounds is determined by the valency of the metal radical. The toxic action is confined to the compounds of hexa-valent chromium. Trivalent chromium salts such as the phosphate and carbonate are harmless (Akatsuka and Fairhall, 1934). Air contaminated with chromic-acid mist or with the dust from chromates or bichromates is the principal source of exposure in industry. This occurs chiefly

in electroplating as the solution in the plating tank contains 50% of chromic acid; during electrolysis reddish-brown fumes which contain 60% of chromic acid are forced up in the form of a mist by the evolution of hydrogen at the cathode.

Dermatitis and Chrome Ulcers. Lesions of the skin due to chromium salts have been known since 1827 when Cumming described chrome holes on the fingers and hands of bichromate workers. The chromates and bichromates of potassium and sodium and chromic acid may cause either dermatitis or localized ulceration according to whether trauma is present or not. Exposure to these substances occurs in chromium platers, color workers, and polishers. Dermatitis may occur on the hands, arms, face and chest. The onset is sudden, but it is unusual for an attack to occur until the operator has been at the work for at least 6 months. In severe cases the face is intensely red and swollen and the affected parts itch a great deal and may become painful. Fair-haired people are particularly prone to chrome dermatitis and their presence at a chromium-plating bath calls for peculiar care.

Chrome ulcers begin in abrasions of the skin and are most commonly found at the root of the fingernail, the knuckle of the hand, or the dorsum of the foot. They are circular in shape, clear-cut, usually one centimeter or less in diameter, and looking as if punched out—hence the name, chrome hole. They have a strong tendency to heal but may penetrate very deeply, even to bone. Although painless, they itch intolerably at night. If neglected, an ulcer may give rise to infection of the adjacent joint causing loss of a finger. There is no tendency towards malignant change. The dust of chromium salts and the mist of chromic acid may produce ulcers on the eyelids or the edge of the nostrils.

Perforation of the Nasal Septum. The mucous membrane of the nose is commonly affected, in which case perforation of the nasal septum occurs. Usually, this causes no inconvenience and is discovered accidentally. The conditions usually appear between the sixth and twelfth month after beginning work. Less commonly, it comes on within 6 weeks to 3 months of the first exposure. The site of election for the ulceration is a point about one quarter of an inch from the lower and anterior margin of the septum; from this point it extends upwards and backwards. The limitation of the perforation to the cartilage of the septum is accounted for by the fact that the mucous membrane covering it is adherent forming the perichondrium, and is far less vascular than the mucous membrane lining the rest of the nasal fossa. Once the mucous membrane is destroyed, the blood supply to the cartilage is cut off and necrosis ensues. When the ulceration has progressed upwards as far as the junction of the septum with the ethmoid and backwards to the vomer, it becomes arrested. Healing then takes

place without the bone being attacked and the scar usually becomes covered with a crust of mucus. Because the anterior or lower border of the septum is never destroyed, the rigidity of the parts is maintained and deformity does not occur. The onset of the process is ushered in by sneezing and by the symptoms of nasal catarrh. The pain accompanying the ulceration appears to be insignificant. It is never severe enough to necessitate absence from work or to call for treatment. Once the perforation is established, the only inconvenience is the formation of plugs of mucus in the nasal passages. The general health is unaffected by the condition. Greensburg and others, in 1942, carried out a survey of 106 painters in an aeroplane factory and found five cases of perforation of the nasal septum as a result of spray painting with a paint containing zinc chromate.

Cancer of the Lung. A high incidence of cancer of the lung in chromate-producing industry has been reported from Germany and the United States. The possibility that chromates could cause cancer of the respiratory system had been denied for many years. Newman, in 1890, recorded the occurrence of adenocarcinoma originating in the nares in a man aged 47 who had worked for 20 years in the chromate industry. He had the perforation of the nasal septum found in many chromate workers. This is the first reported case of cancer of the respiratory system in a chromate worker. Machle and Gregorium, in 1948, studied the mortality experience of workers in the chromate-producing industry in the United States. They found that the ratio of deaths from cancer of the lung in these workers was sixteen times the expected ratio of 1.3%. Machle suggested that monchromates rather than dichromates may be the carcinogenic agents. Baetjer, in 1950, confirmed these findings for the industry in the United States in a study based on the records from two Baltimore hospitals, each of them near a chromate-producing factory. In the majority, the primary growth was in the lung. In these cases the average duration of exposure to chromates is estimated to be from 10 to 15 years. The symptoms and clinical course are similar to those in cases where occupational factors can be excluded.

Preventive Measures. The preventive measures necessary in handling chromic acid, chromates, and bichromates include the removal of dust and mists, cleanliness, regular medical supervision, and covering up of cuts and abrasions with suitable dressings. The prevention of danger in chromium plating and anodizing depends on the correct design of the vats to include exhaust ventilation. Rubber gloves, boots, and aprons for persons working around chromic-acid tanks are of value provided the solution does not get inside these protective items. The exposed skin should be washed and carefully dried. Application of an ointment made up of equal parts of lanolin and soft paraffin is useful. Soft paraffin should be freely applied through the anterior nares to the nasal septum. Periodic inspection of the nasal passages should be regularly conducted.

Report on the 1959 National Health Forum

The Annual National Health Forum met 17 - 19 March 1959 at the Palmer House, Chicago, Ill. The annual forums are sponsored by more than 60 member agencies of the National Health Council. These forums enable leaders in health and other organizations to consider together important problems which require public and professional attention and action by many groups. The 1959 Forum provided an opportunity to focus attention on the "Health of People Who Work" and to consider ways to improve the health of workers.

Many different factors prompted the selection of Occupational Health as the subject for this Forum: (1) Good occupational health programs in large industries were proving their worth, but relatively little was being done for small plants. (2) The work of the American Academy of Occupational Medicine, the Industrial Medical Association, the American Medical Association's Council on Industrial Health, and related professional organizations was directing more and more professional attention to the challenging problems and opportunities in the protection of the health of people who work. (3) New industrial and agricultural employment hazards and their effect on the general environment were causing public health officials to examine their responsibilities in this area. (4) Management and labor were seeing greater common cause in the safeguarding of the health and production capacity of employees. (5) Voluntary agencies were increasingly recognizing that their services could be more fully utilized on behalf of people who work. (6) Those responsible for community planning of health and welfare agencies were more clearly aware of the close relationship between the job and the community.

The time seemed to have arrived to bring together all these diverse interests to examine the health of people who work. The suggestion met with enthusiastic response. A hard working representative committee developed a program reflecting the diversity of interest and providing for discussion of the major elements of common concern.

Much of the material covered applies to the health of Naval personnel, both military and civilian. Some may be used to further develop the Navy's Occupational Health Program.

The Annual Forum was opened by James H. Sterner, M. D., Medical Director of Eastman Kodak Company and Chairman of the 1959 National Health Committee. Following a few introductory remarks, Dr. Sterner read a telegram from the President of the United States. The President extended his best wishes and hope that the 1959 Forum would be instructive and result in some constructive action to improve the health of people who work.

Dr. Sterner introduced the Commissioner of Health of the City of Chicago who conveyed greetings to all from the Mayor of Chicago, the Honorable Richard J. Daley.

Two keynote addresses were given during the first session of the Forum. The Honorable Arthur S. Flemming, Secretary, Department of Health, Education, and Welfare, the first speaker, prefaced his remarks by saying, "This is America at its best; here in this room are leaders in the field of health whose objectives are to keep our population well." He reported that meetings on health in Washington, D. C. had revealed the shortage of adequately trained health personnel. This resulted in the formation of a health career program in which secondary education was stressed.

Mr. Flemming emphasized the need to make full and intelligent use of available manpower, pointing out that there is a great deal to be done regarding human resources. Information obtained from the U. S. Public Health Service showed that health conditions were responsible for 500,000,000 man-days lost each year and $6,000,000,000 lost in wages each year. "Most of us are so busy taking care of urgent matters that we neglect important matters." In conclusion, Mr. Flemming stated that objectives in the fidle of health education must be clearly defined and work should commence on it during the Forum.

Mr. A. J. Hayes, President of the International Association of Machinists, the second speaker, stressed the needs of labor for more comprehensive health services. He expressed the feeling that people who are engaged in health practices are not facing the facts regarding the need for increased health services. "You cannot deal with any problem unless you consider all the facts." Mr. Hayes discussed the difficulty in prevention of hearing loss in persons employed in noise hazardous areas; a situation which presents "a great challenge to the medical profession."

A special luncheon on the first day of the Forum was presided over by Edward C. Logelin, Vice President of the U. S. Steel Corporation and Chairman of the Local Committee for the 1959 National Health Forum. Following the luncheon an address was given by Reynolds I. Nowell, Vice President and Economist, Equitable Life Assurance Society of the United States, who spoke on the over all economic state of the United States indicating that the present large amount of unemployment is due largely to technological advances and automation.

A special general session was held on "The Expectations of Management Regarding Occupational Health" with David L. Price, M.D., Assistant Surgeon General, U. S. Public Health Service, presiding. Two other participants were Thomas M. McClellan, President, Birmingham Paper Company, and Leo Wade, M.D. Medical Director, EssoStandard Oil Company. Mr. McClellan pointed out that health programs for people who work cost money. There are many things which management does not understand regarding establishment of health programs. The man who works has some responsibilities in maintaining his own good health. If he gives up this responsibility he gives up some of his freedom. This could result in loss of his right to select medical care of his own choosing.

Doctor Wade agreed that management does not understand all the problems. The people who work expect some type of medical care. He suggested that management should carefully select a medical advisor and follow his recommendations. These include such items as hiring healthy people, maintaining a healthy working environment, providing emergency first-aid as required, helping employees keep their health, helping people when sick, helping management deal with social medical problems, and cooperating with local health societies.

The remainder of the first day of the Forum was spent in simultaneous group discussions covering the following subjects: Placement of Workers in Relation to Their Physical and Mental Capacity, Mental Health Aspects of Work, Environments in which the Worker Works and Lives, Health Education in the Occupational Setting, and Understanding Each Other.

These group discussions were continued throughout the second day, adding such subjects as Mobilization of Resources, Where Is the Manpower to Come from? Small Industrial Plants, and Are Occupational Health Programs Worthwhile?

Norvin C. Kiefer, M.D., President of the National Health Council, presided over the Forum dinner. He introduced Leonard Larson, M.D., Chairman of the Board of Trustees, American Medical Association, who spoke briefly against the socialization of medicine, advocating that the patients be allowed free choice of physicians for medical care. Next, Doctor Kiefer introduced Edwin J. Faulkner, President of the Woodmen Accident and Life Insurance Company, who reviewed the relationship between insurance and health programs.

The final session of the Forum, "Springboard for Action," was held on the morning of the third day in a closing general session. Carey P. McCord, M.D., Editor, "Industrial Medicine and Surgery," presided over this session. The first speaker, George A. Bray, General Personnel Supervisor of Illinois Bell Telephone Co., stressed that "health is one of our most precious resources." He further discussed successful occupational health programs and their dependence on proper planning and good communications, small plant needs, occupational health objectives, integration of occupational health programs as part of the job, and continued education. The next speaker, George Brown, Executive Secretary, AFL-CIO Committee on Safety and Occupational Health, spoke briefly on labor management relations, health education facilities, cost of health programs, joint committees on health between labor and industry, community health services, and legislation. Next, John W. Ferree, M.D., discussed health education of workers, community health services, establishment of health standards, and basic, epidemiological, and operational medical research.

Michael Zavon, M.D., spoke on the necessary action to be taken in promoting occupational health programs for people who work. The needs for action were: procurement of funds, development of occupational health programs

for official health agencies, training of personnel in occupational health, to have an official agency advise small plant operators regarding occupational programs, and for U. S. Government define objectives and establish a Federal committee on occupational health. The last speaker of the Closing General Session was Melvin N. Newquist, M.D., who spoke on the need to provide leadership in the field of occupational health, define objectives and responsibilities, provide an adequate number of trained personnel and, finally, to educate both management and labor on the needs and purpose of good occupational health programs.

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Editor

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